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| 10/573,211 | 01/17/2007 | Yasutoshi Kawaguchi | OKUDP0163US | 7642 |

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MARK D. SARALINO (PAN)
RENNER, OTTO, BOISSELLE & SKLAR, LLP
1621 EUCLID AVENUE
19TH FLOOR
CLEVELAND, OH 44115

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| EXAMINER |
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SAYADIAN, HRAYR

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03/22/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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| Office Action Summary | Application No. 10/573,211 | Applicant(s) KAWAGUCHI ET AL. | |
| | Examiner HRAYR A. SAYADIAN | Art Unit 2814 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-17 is/are pending in the application.
- 4a) Of the above claim(s) 3, 7-14 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED OFFICE ACTION

Applicant's Elections

1. The 11/30/2009 and 8/24/2009 Replies responded to the Lack of Unity Requirements by electing, without traverse, claims 1, 2, 4-6, 15, and 16 for prosecution on the merits.

Accordingly, the 3/24/2010 Office Action withdrew claims 3, 7-14, and 17 from further consideration as being drawn to non-elected inventions and made final the requirements.

The Lack of Unity Requirements and their finality are proper and they are, therefore, maintained.

35 U.S.C. § 102 Rejections of the Claims

2. The text of the appropriate paragraph(s) of 35 U.S.C. § 102, providing the legal basis for the anticipation rejection(s) in this Office Action, can be found in a previous Office Action.

3. Claims 1, 2, 5, 6, 15, and 16 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 6,456,640 to "Okumura."

As to interpreting scope of claims 1 and 15, the scope includes a light emitting device (including a semiconductor laser) having an active layer with multiple undoped InGaN wells (MQWs) formed on an n-type nitride layer; an undoped GaN layer formed on the MQW; an AlGaIn light guide layer comprising an undoped AlGaIn guide layer (corresponding to the recited undoped nitride layer) formed on, and in contact with, the undoped GaN layer, and comprising an Mg/p-doped AlGaIn guide layer (corresponding to the recited p-doped first nitride layer) formed on, and in contact with, the undoped AlGaIn guide layer; and an Mg/p-doped nitride cladding layer (corresponding to the recited second p-doped nitride layer) formed on, and in contact with, the Mg/p-doped guide layer.

As to rejecting claims 1, 2, 5, 6, 15, and 16 over the prior art, Okumura discloses a light emitting device (see the title; see Example 1 starting column 7, line 34) comprising an active layer 6 (see column 7, lines 40-45) with multiple undoped InGaN wells (MQWs) formed on an n-type nitride layer; an undoped GaN layer 7 (see column 7, lines 45-47 and column 8, lines 58-62 stating that GaN can be used as the layer 7) formed on the MQW; an AlGaN light guide layer 8 (see column 7, lines 46-47) comprising (see column 8, lines 21-31) an undoped AlGaN guide layer (corresponding to the recited undoped nitride layer) formed on, and in contact with, the undoped GaN layer, and comprising an Mg/p-doped AlGaN guide layer (corresponding to the recited p-doped first nitride layer) formed on, and in contact with, the undoped AlGaN guide layer; and an Mg/p-doped nitride cladding layer 9 (see column 7, line 47; corresponding to the recited second p-doped nitride layer) formed on, and in contact with, the Mg/p-doped guide layer.

With respect to claim 2, it is noted that it recites functional, intended outcome recitation.

"The subject matter of a properly construed claim is defined by the terms that limit its scope. As a general matter, the grammar and intended meaning of terms used in a claim will dictate whether the language limits the claim scope. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. The following are examples of language that may raise a question as to the limiting effect of the language in a claim:

- (A) statements of intended use or field of use,
- (B) 'adapted to' or 'adapted for' clauses,
- (C) 'wherein' clauses, or
- (D) 'whereby' clauses.

This list of examples is not intended to be exhaustive." See M.P.E.P § 2106IIC.

If a prior art structure is capable of performing the intended use recitation in a product claim, then it meets the claim. See, for example, *In re Schreiber*, 44 USPQ2d 1429, 1431-1432 (Fed. Cir. 1997) (affirming anticipation rejection based on Board's factual finding that the reference dispenser (a spout disclosed as useful for purposes such as dispensing oil from an oil can) would be capable of dispensing popcorn in the manner set forth in appellant's claim) and cases cited therein.

"[A]pparatus claims cover what a device is, not what a device does." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). A "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Accordingly, absent reciting required structural feature(s) achieving the functional effect, or affect, a functional recitation is determined to be optional intended-use (or intended-outcome) language not distinguishing scope of an apparatus claim over a prior art apparatus capable of being modified to be used according to the intended-use language, or capable of being modified to yield the intended-outcome language. See M.P.E.P. § 2114 and the precedents cited therein.

Claim 2 recites "wherein the second p-type nitride semiconductor layer functions as a barrier layer for suppressing a carrier overflow from the active layer," underlined by Examiner for emphasis, which expressly recites the intended function and intended outcome of the second p-type semiconductor layer, but lacks any further structure limiting the layer.

The p-doped nitride cladding layer 9 in Okumura has bandgap greater than the light guide layer and therefore "functions as a barrier layer for suppressing a carrier overflow from the active layer," as recited in claim 2.

With respect to claim 5, the undoped AlGa_N guide layer has smaller bandgap than the p-doped AlGa_N. See column 8, lines 21-31.

With respect to claim 6, the undoped AlGa_N guide layer has a bandgap equal to that of the p-doped AlGa_N guide layer. See column 8, lines 27-31.

35 U.S.C. § 103 Rejections of the Claims

4. The text of the appropriate paragraph(s) of 35 U.S.C. § 103, providing the legal basis for the obviousness rejection(s) in this Office Action, can be found in a previous Office Action.

5. Claims 1, 2, 5, 6, 15, and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okumura in view of U.S. Pat. No. 6,468,821 to "Maeda."

For the sake of argument only, and in the interest of compact prosecution, if Okumura is determined not to explicitly disclose an active layer comprising undoped InGa_N layers, then Examiner notes that the art well recognizes this feature is suitable for light emitting devices.

Specifically, Maeda (see column 10, lines 33-36) discloses that undoped InGa_N wells are suitable for MQW active layer in nitride light emitting devices.

According to well-established patent law precedents (See, for example, M.P.E.P. § 2144.07), therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention of this application to have used the prior art disclosed undoped InGa_N material as the wells in the MQW active layer of a nitride light emitting device, as taught Maeda.

6. Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Okumura in view of Japanese Pat. Doc. No. 2000-151023 to "Kubota."

For the sake of argument only, and in the interest of compact prosecution, if cladding layer 9 is determined not to function as a barrier for suppressing

carrier overflow, then Examiner notes that the art well recognizes this feature is suitable for light emitting devices.

Specifically, Kubota (See FIGs. 2 and 4 and the English Abstract) discloses placing a highly p-doped cladding layer on the side of the guide layer away from the active layer, so that the cladding layer functions as a barrier to suppress (block) carrier overflow from the active layer.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention of this application to have modified the cladding layer Okumura discloses so that it is highly p-doped (or has a portion that is highly p-doped) so that it functions as a barrier to suppress (block) carrier overflow from the active layer, as taught by Kubota.

Response to Arguments

7. The arguments in the 12/13/2010 Reply have been fully considered. These arguments however are moot in view of the new rejection(s).

The Reply argues that Tsujimura fails to disclose the limitations added to claims 1 and 15 and that Okumura fails to remedy the deficiency of Tsujimura.

In response, and contrary to the contention in the Reply, Examiner notes that Okumura anticipates (or renders obvious in view of Kubota) the features added to claims 1 and 15, as explained above in the rejection of the claims.

CONCLUSION

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS OFFICE ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a).

A shortened statutory period for reply to this Office Action is set to expire THREE MONTHS from the mailing date of this Office Action.

Extension of this time period may be granted under 37 CFR § 1.136(a). **The**

maximum period for reply, however, is SIX MONTHS from the mailing date of this Office Action.

If a first reply is filed within TWO MONTHS of the mailing date of this Office Action and the advisory Office Action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory Office Action is mailed, and any extension fee pursuant to 37 CFR § 1.136(a) will be calculated from the mailing date of the advisory Office Action.

Any inquiry concerning this communication or earlier communications from an Examiner should be directed to Examiner Hrayr A. Sayadian, at (571) 272-7779, on Monday through Friday, 7:30 am – 4:00 pm ET.

If attempts to reach Mr. Sayadian by telephone are unsuccessful, his supervisor, Supervisory Primary Examiner Wael Fahmy, can be reached at (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available only through Private PAIR. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. The Electronic Business Center (EBC) at (866) 217-9197 (toll-free) may answer questions on how to access the Private PAIR system.

/Hrayr A. Sayadian/

Primary Examiner, Art Unit 2814

1-571-272-7779